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MH2 TECHNOLOGY LAW GROUP (Cust. No. w/NewMarket)
1951 KIDWELL DRIVE
SUITE 550
TYSONS CORNER, VA 22182

EXAMINER	
GOLOBOY, JAMES C	

ART UNIT	PAPER NUMBER
1714	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/779,970	ESCHE, CARL K.	
	Examiner	Art Unit	
	James Goloboy	1714	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 August 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-39* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-39* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The finality of the previous office action has been withdrawn. New grounds of rejection are set forth below.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-18, 23-34, and 39 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 1, 14, 24, 30, and their dependent claims have been amended to require that the aliphatic amine be chosen from a group of specific amines. However, the claim also recites a group of acceptable hydroxyamines that includes further aliphatic amines not in the newly added group. The two groups are therefore in conflict.

Claim Rejections - 35 USC § 102

4. Claim 19 is rejected under 35 U.S.C. 102(b) as being anticipated by Soula (U.S. Pat. No. 4,094,802, "Soula '802").

Soula '802, from column 1 line 65 through column 2 line 1, describes the preparation of the reaction product of a polyisobutenyl succinic anhydride (PIBSA) with N,N,N′,N′-tetrakis-(3-aminopropyl)-ethylenediamine which is formed by the reaction of an ethylenediamine, which meets the limitations of the aliphatic amine recited in claim

19, with acrylonitrile (column 2 lines 58-62), followed by reductive hydrogenation to a primary amine as recited in Claim 19. While Soula '802 does not disclose the use of the reaction product as a fuel additive, case law holds that a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963). In this case, the reaction product of Soula '802 meets the structural limitations of claim 19, and it therefore capable of use as a fuel additive.

5. Claims 19-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Soula (U.S. Pat. No. 4,088,381, "Soula '381").

Soula '381, from column 7 line 49 through column 8 line 58 (Example 3), describes the preparation of the reaction product of a polyisobutenyl succinic anhydride with a molecular weight of about 1000, falling within the range recited in claim 1, and a primary amine (column 7 line 54), which is formed by the reaction of an amine with acrylonitrile (column 7 line 67 through column 8 line 15), followed by reductive hydrogenation to a primary amine (column 8 lines 16-58), as recited in claim 19. Although the particular example of Soula '381 utilizes a tertiary amine (triethanolamine) as the initial amine, attention is drawn to the column 3 lines 43-56 (structure III and the surrounding paragraph), where it is disclosed that the initial amine may be primary or secondary (the cases where X and/or X' are hydrogens), as recited in claim 19.

With respect to claim 20, it is the examiner's position that the limitations of the claim require the reaction product of Claim 19 to be open to additional reactants other than the treated amine and the acylating agent, as it would otherwise be impossible for the product to comprise an untreated amine. This is reinforced by page 8 lines 1-2 of the specification, which notes that a combination of treated and untreated amines may be used to make the additive. It is also the examiner's position that the "treated amine" refers to the mixture of all the products of the reaction of the initial amine with acrylonitrile and ensuing reduction, and that any individual amine is by definition untreated, even if it may also be obtained as a component of the treated amine mixture. Soula '381, in line 6 of the abstract, discloses that the succinimides may be obtained by reacting alkenylsuccinic anhydride with multiple ("at least one") polyamines, and claim 20 is met when one of the polyamines is added as a neat compound with the structure disclosed in the abstract of Soula '381, rather than obtained as part of the treated amine mixture.

While Soula '802 does not disclose the use of the reaction product as a fuel additive, case law holds that a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963). In this case, the reaction product of Soula '802 meets the structural limitations of claim 19, and it therefore capable of use as a fuel additive.

Claim Rejections - 35 USC § 103

6. Claims 19 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kluger (U.S. Pat. No. 4,153,567).

In column 1 lines 3-9, Kluger discloses a lubricant and fuel additive prepared by reacting an acylating agent with a polyamino-substituted cycloaliphatic compound. From column 2 line 58 through column 4 line 2, Kluger discloses that the polyamino-substituted cycloaliphatic compound is prepared by reacting 1,2-diaminocyclohexane with acrylonitrile and reducing the product to a primary amine. The treated amine of Kluger therefore meets the limitations of the treated amine of claims 19 and 35. From column 4 line 63 through column 5 line 23, Kluger discloses that the acylating agent is a hydrocarbyl substituted succinic anhydride, meeting the limitations of the acylating agents of claims 19 and 35. The only difference between Kluger and the compounds of claims 19 and 35 is that Kluger does not disclose a product with a molecular weight between 900 and 50,000.

Kluger discloses in column 5 lines 19-22 that the hydrocarbyl succinic anhydride has a molecular weight from about 300 to about 5100, and in column 3 lines 55-60 (structure 5) that the treated amine has a molecular weight of 218. The final product therefore has a molecular weight from about 500 to about 5300, overlapping the range recited in claims 19 and 35. See MPEP 2144.05(I): "In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of

obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976);" Claims 19 and 35 are therefore rendered obvious by Kluger.

7. Claims 1, 4, 7-9, 14-15, 18-19, 30-31, and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Germanaud (U.S. Pat. No. 5,055,213).

In column 1 lines 9-11, Germanaud discloses a polymeric compound useful as a lubricant additive. In the abstract, Germanaud teaches that the additive is formed by the condensation of a primary or secondary amine or a polyalkylenediamine with a copolymer containing vicinal carboxylic groups. In column 6 lines 1-14, Germanaud teaches that the polyalkylenediamine such as N-aminopropylphenothiazine is prepared by cyanoethylation of phenothiazine with acrylonitrile followed by reduction to the primary amine. In column 3 lines 41-42 Germanaud teaches that the polyalkylenediamine can also be a derivative of naphthylamine, an aromatic amine as in claims 1, 4, 14, 19, and 30, and teaches in column 3 lines 55-56 that this derivative would be N-aminopropyl-2-naphthylamine, which would be derived from naphthylamine by the same cyanoethylation and reduction process used for phenothiazine, and would therefore meet the limitations of the treated amine of claims 1, 14, 19, and 30. In column 5 lines 10-12, Germanaud teaches that the copolymer can be formed by grafting an unsaturated acid onto a hydrocarbon polymer, and teaches in column 5 lines 23-24 and 38-39 that ethylene-propylene copolymers are preferred hydrocarbon copolymers. The copolymer of Germanaud therefore meets the limitations of claims 1, 7, 14, 19, and 30. In column 7 lines 22-24, Germanaud teaches that the additive is added to a lubricant

composition in a concentration from 1 to 10% by weight, falling within the range recited in claims 9 and 18. In column 3 lines 10-37 and 57-59 Germanaud teaches that the primary or secondary amine may be an aliphatic or aromatic amine. If another of the above amines that is not formed by cyanoethylation and reduction is added to the reaction mixture, the product of Germanaud meets the limitations of claims 8 and 15. In column 7 line 49 Germanaud teaches that the additive can be used in gear oil, as in claim 31. Furthermore, as a the process disclosed by Germanaud for making the additive does not involve the use of sulfur or phosphorus, the additive clearly meets the limitations of Claim 39. The compound of Germanaud therefore meets all the limitations of claims 1, 4, 7, 9, 14, 18-19, 30-31, and 39, except for the molecular weight of the product.

Germanaud discloses in column 5 lines 40-44 that the copolymer has a molecular weight between 20,000 and 500,000. The final product will therefore have a molecular weight overlapping the range recited in claim 1. See MPEP 2144.05(I): "In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976);" Claims 1, 4, 7, 9, 14, 18-19, 30-31, and 39 are therefore rendered obvious by Germanaud.

8. Claims 11-12, 16-17, and 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Germanaud in view of Papay (U.S. Pat. No. 5,652,201).

The discussion of Germanaud in paragraph 7 above is incorporated here by reference. Germanaud discloses a multifunctional lubricant additive. The differences between Germanaud and the currently presented claims are:

ii) Germanaud discloses in column 7 lines 41-44 that the composition comprises additional additives, but does not disclose the specific additional additives. of Claims 11-12, 16, and 21.

iii) Soula also discloses in column 7 lines 41-44 that composition can comprise an additional dispersant, but does not disclose a post treated succinimide. This relates to Claims 17 and 22.

With respect to i), Papay, in column 44 lines 57-59 discloses that multiple ("one or more") dispersants may be included in a lubricant composition in order to improve dispersancy, and the additional dispersants may be succinimide or Mannich dispersants as recited in Claims 11, 16, and 21. Papay also teaches in column 45 lines 67-69 that the additional dispersant may be a dispersant-viscosity index improver, which are well known in the art to comprise a polymer reacted with an amine, as recited in Claims 11, 16, and 21. In column 50 line 51, Papay discloses a preferred concentration of 0-5% for the supplemental dispersant; when combined with the 1 to 10% concentration taught for Germanaud's additive, this results in a concentration of 1 to 15% by weight of the additive package, strongly overlapping the range recited in Claim 12.

With respect to ii), Papay describes in columns 18-20 and 23 polyamine dispersant additives for lubricating compositions, and in columns 23-24 teaches that these additives may be post treated, as recited in Claims 17 and 22.

It would have been obvious to one of ordinary skill in the art to add an additional dispersant to the composition of Germanaud, as taught by Papay, in order to further improve the dispersancy of the composition. It would have been obvious to post treat the dispersant of Germanaud in order to impart additional properties such as detergency.

9. Claims 30-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Soula in view of Lambert (U.S. Pat. No. 5,888,947).

This discussion of Germanaud in paragraph 7 above is incorporated here by reference. Germanaud discloses in column 7 lines 45-47 a lubricating oil composition including an additive for use in an engine, but does not explicitly teach a method for lubricating moving parts with the lubricant.

Lambert, in column 1 lines 21-33, teaches that moving parts can be lubricated by contacting them with a lubricant. The use of the lubricant disclosed by Germanaud in this method meets Claims 30 and 32. In Lambert's Claim 21 the use a gear lubricant is disclosed, as recited in the currently presented Claim 31.

It would have been obvious to one of ordinary skill in the art to use the lubricant of Germanaud for the purpose of lubricating moving parts, as taught by Lambert, in order to reduce wear and increase the lifetimes of the moving parts.

10. Claims 33-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Germanaud in view of Lambert as applied to claim 33 above, and further in view of Papay.

The discussions of Germanaud in view of Lambert in paragraph 9 above and Germanaud in view of Papay in paragraph 8 above are incorporated here by reference. Soula in view of Lambert does not disclose a second dispersant additive or a post treated additive.

Papay discloses a second dispersant and a post treated additive for a lubricant composition, as discussed in paragraph 10 above. The method for lubricating moving parts of Germanaud in view of Lambert further comprising a second dispersant or a post treated additive, as taught by Papay, meets Claims 33-34.

It would have been obvious to one of ordinary skill in the art to include in the method of Germanaud in view of Lambert a second dispersant additive, as taught by Papay, in order to further reduce deposits, or a post treated additive for the purpose of providing additional functionality to the additive of Germanaud.

11. Claims 10 and 24-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Germanaud in view of Lambert as applied to claims 30-32 above, and further in view of Galka (U.S. Pat. No. 6,427,647).

The discussion of Germanaud in view of Lambert in paragraph 9 above is incorporated here by reference. Germanaud in view of Lambert discloses a method of lubricating moving parts with a lubricant, but does not specifically disclose moving parts

of a vehicle. Germanaud in view of Lambert does disclose that the moving parts may be within an internal combustion engine.

Galka discloses a two-stroke internal combustion engine, and in column 1 teaches that the engines may be used in vehicles such as snowmobiles and marine vessels, as recited in Claims 10 and 24. The use of the lubricating method of Germanaud in view of Lambert in the engine taught by Germanaud therefore meets the limitations of 10, 24, 25, and 27. Furthermore, an engine is part of a vehicle's drive train, meeting Claim 26 as well.

It would have been obvious to utilize the method of lubricating moving parts in an engine of Germanaud in view of Lambert in a vehicle, as taught by Galka, to improve the performance and durability of the vehicle.

12. Claims 28-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Germanaud in view of Lambert further in view of Galka as applied to claims 10 and 24-27 above, and further in view of Papay.

The discussions of Germanaud in view of Lambert in view of Galka in paragraph 11 above and Germanaud in view of Papay in paragraph 8 above are incorporated here by reference. The combination of Germanaud, Lambert, and Galka does not disclose a second dispersant additive or a post treated additive.

Papay discloses a second dispersant and a post treated additive for a lubricant composition, as discussed in paragraph 10 above. The method for lubricating the moving parts of a vehicle of Germanaud, Lambert, and Galka further comprising a second dispersant or a post treated additive, as taught by Papay, meets Claims 28-29.

It would have been obvious to one of ordinary skill in the art to include in the method of Germanaud in view of Lambert further in view of Galka a second dispersant additive, as taught by Papay, in order to further reduce deposits, or a post treated additive for the purpose of providing additional functionality to the additive of Germanaud.

13. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Germanaud in view of Smith (J. Org. Chem, 1950, 15, p. 1129).

The discussion of Germanaud in paragraph 7 above is incorporated here by reference. Germanaud teaches the cyanoethylation of an amine with acrylonitrile, but does not disclose the ratio of the reactants. Germanaud does cite Smith as teaching a method of the cyanoethylation.

Smith, on page 1129, teaches the reaction between phenothiazine and acrylonitrile. The reaction of Smith uses 200 g (1 mole) of phenothiazine, and 300 ml of acrylonitrile. The density of acrylonitrile is 0.81 g/ml, and the molecular weight of acrylonitrile is 53.1 g/mol. The reaction of Smith therefore uses ((300 * 0.81) / 53.1) = 4.58 mol of acrylonitrile. The reaction of Smith therefore uses a reactant ratio within the range recited in claim 2.

14. Claims 13, 23, and 35-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Germanaud in view of Kapuscinski (U.S. Pat. No. 4,877,415).

The discussion of Germanaud in paragraph 7 above is incorporated here by reference. Germanaud discloses a multifunctional lubricant additive, but not its use in a fuel composition.

Kapuscinski, in the abstract, discloses an additive for both lubricants and fuels consisting of an ethylene-propylene copolymer bearing units derived from phenothiazine. In column 1 lines 26-39 Kapuscinski teaches that these additives perform as dispersant-viscosity index improvers, as do the additives of Germanaud. In column 7 lines 47-53, Kapuscinski teaches that the additive is effective in a concentration of 25 pounds per thousand barrels of diesel fuel, within the range recited in claims 13-23.

It would have been obvious to one of ordinary skill in the art to use the additive of Germanaud in a fuel in the concentration taught by Kapuscinski, as Kapuscinski teaches that it is an effective concentration for an additive having similar structure and functionality. The use of the additive of Germanaud in a fuel also renders obvious the method of claims 35-36.

15. Claims 21-22 and 37-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kluger in view of Papay.

The discussions of Kluger in paragraph 6 above and Papay in paragraph 8 above are incorporated here by reference. Kluger in view of Steckel does not disclose a second dispersant additive or a post treated additive.

Papay discloses a second dispersant and a post treated additive, as discussed in paragraph 10 above. The composition and method for decreasing deposits of Kluger further comprising a second dispersant or a post treated additive, as taught by Papay, meets Claims 21-22 and 37-38.

It would have been obvious to one of ordinary skill in the art to include in the composition and method of Kluger a second dispersant additive, as taught by Papay, in order to further reduce deposits, or to post treat the additive of Kluger for the purpose of providing additional functionality to the dispersant of Kluger.

Allowable Subject Matter

16. Claims 3 and 5-6 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

The prior art, as exemplified by Soula and Kluger discloses compositions prepared by the reaction of hydrocarbyl succinic anhydrides with treated amines, but do not teach the specific aliphatic or aromatic amines recited in claims 1 and 3, nor do they provide any teaching or suggestion that would lead one of ordinary skill in the art to substitute the amines of claims 1 and 3 for the ones taught in the references. Germanaud discloses a composition prepared by the reaction of grafted ethylene-propylene copolymers with treated amines, meeting the limitations of claim 1, but does not provide for the reaction of a hydrocarbyl succinic anhydride or a Mannich adduct with the treated amine, as in claims 5 and 6.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Goloboy whose telephone number is 571-272-2476. The examiner can normally be reached on M-F 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

James C. Goloboy
JCG

/Vasu Jagannathan/
Supervisory Patent Examiner
Technology Center 1700